CLAIMS

What is claimed is:

1. An intake manifold for a vehicle, comprising:

an intake housing having a plurality of short runner valves for metering air intake;

said short runner valves being attached to at least a pair of shafts for opening said plurality of short runner valves substantially in unison; and

a linkage connecting said shafts for synchronized movement therebetween;

said linkage including a lost motion device such that said valves continue to be closed after a valve attached to one of said shafts has reached a closed position.

2. An intake manifold for a vehicle, comprising:

an intake housing having a plurality of short runner valves for metering air intake;

at least a pair of shafts attached to said short runner valves for opening and closing said plurality of short runner valves substantially in unison;

a first and a second control arm attached to said shafts, said control arms connected to one another by way of a linkage, wherein said linkage is a resilient flexible rod having a "J" shaped profile that constitutes an integrated lost motion device permitting differential movement between said first and second control arms allowing continued travel of said valves to the closed position after a valve attached to one of said shafts has reached a closed position.

3. The intake manifold of claim 2 wherein said lost motion device comprises a spring member on one of said control arms and said rod is attached to said spring member.

4. The intake manifold of claim 3 wherein said spring member is a leaf spring.

5. The intake manifold of claim 4 wherein said spring member is a clock spring member.

6. The intake manifold of claim 5 wherein said spring is attached to said valve shaft.

7. The intake manifold of claim 2 wherein the lost motion device includes a pair of springs which are in line in said rod.

8. An anti-chatter device for a short runner manifold tuning valve of an engine manifold comprising:

an engine manifold including a series of short runners;

a series of actuatable valves in said short runners;

said valves being attached to a shaft run through a bore in said manifold;

an opening adjacent said shaft; and

placing an anti-chatter device in said opening for removing any play of said shaft in its bore without imparting biasing on said shaft.

9. The anti-chatter device of claim 8 further comprising a shaft engaging member and a retention device for frictionally holding said shaft engaging member in anti-chatter proximity to said shaft.

10. The anti-chatter device of claim 9 wherein said retention device further includes at least one further includes at least one cam member and a wedge member configured for frictionally engaging the side of the opening for holding of said shaft engaging member in anti-chatter proximity to said shaft.

11. The anti-chatter device of claim 10 wherein said retention device includes a semi-circular cross-section cam member having a ramp camming surface, said wedge member being a rod member for engaging with the ramp portion for forcing said member laterally against a wall of said opening, and a cap member for securing said rod in said opening in the engaged position.

12. The anti-chatter device of claim 10 wherein said retention device includes a pair of camming members having longitudinally and radially inward extending ramp surfaces and having surfaces for frictionally engaging the sides of said opening, a

spring loaded wedge member for engaging said ramp surfaces laterally against the sides of said opening.

13. The anti-chatter device of claim 12 wherein said wedge member is a ball.

14. The anti-chatter device of claim 10 wherein said retention device is a dashpot member.

15. The anti-chatter device of claim 14 wherein said dashpot member is integrally formed with said shaft engaging member.

16. The anti-chatter device of claim 14 further comprising a spring for urging said dashpot into position without biasing the dashpot member against said shaft.

17. The anti-chatter device of claim 10 wherein said cam member is integrally formed with the shaft engaging member, said cam member including a plurality of radially displaceable leaves and including a central opening, a wedge member inserted in said central opening for forcing said leaves outward against the walls of said opening.

18. An intake manifold for an engine comprising:

at least one short runner passage in said manifold having a circular cross-section;

a shaft running through said short runner passage;

a valve plate member attached to said shaft, said valve plate member having a slight elliptical shape such that the clearance between the valve plate and the side of the short runner valve at the shaft portion which is greater than the clearance at a location about 90 degrees from the shaft.

19. The intake manifold of claim 18 wherein said valve plate member further comprises a shape of an angled slice of a cylinder.